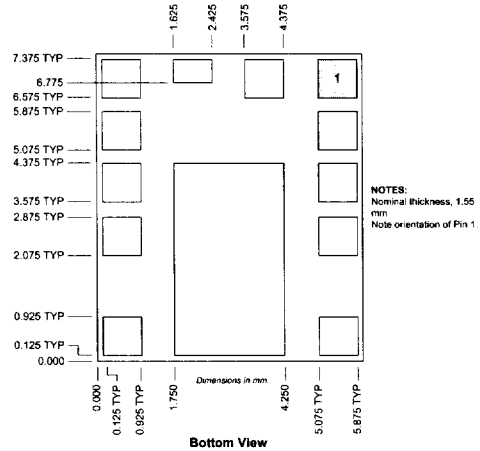


**Typical Applications**

- 3V CDMA US-PCS Handsets
- 3V CDMA2000/1X PCS Handsets
- Spread-Spectrum Systems
- Designed for Compatibility with Qualcomm Chipsets

**Product Description**

The RF3300-3 is a high-power, high-efficiency linear amplifier IC targeting 3V handheld systems. The device is manufactured on an advanced Gallium Arsenide Hetero-junction Bipolar Transistor (HBT) process, and has been designed for use as the final RF amplifier in dual-mode 3V CDMA handheld digital cellular equipment, spread-spectrum systems, and other applications in the 1850MHz to 1910MHz band. The RF3300-3 has a digital control line for low power application to reduce the current drain. The device is self-contained with 50Ω input and output that is matched to obtain optimum power, efficiency, and linearity characteristics. This amplifier contains a temperature compensating bias circuit for improved performance over temperature.



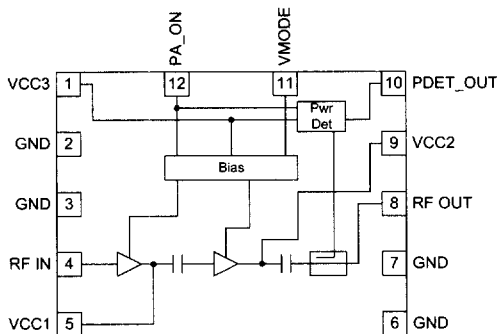
**Optimum Technology Matching® Applied**

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| <input type="checkbox"/> Si BJT     | <input checked="" type="checkbox"/> GaAs HBT | <input type="checkbox"/> GaAs MESFET             |
| <input type="checkbox"/> Si Bi-CMOS | <input type="checkbox"/> SiGe HBT            | <input type="checkbox"/> Si CMOS                 |
| <input type="checkbox"/> InGaP/HBT  | <input type="checkbox"/> GaN HEMT            | <input checked="" type="checkbox"/> SiGe Bi-CMOS |

**Package Style: Module (6mmx7.5mm)**

**Features**

- Single 3V Supply with Internal  $V_{REF}$
- Integrated Power Detector
- 25dB Linear Gain
- 40mA Idle Current (Low Power Mode)
- Temperature Compensating Bias Circuit
- Integrated PA Enable Switch



**Functional Block Diagram**

**Ordering Information**

- RF3300-3 3V 1900MHz Linear Amplifier Module
- RF3300-3 PCBA Fully Assembled Evaluation Board

RF Micro Devices, Inc.  
7628 Thorndike Road  
Greensboro, NC 27409, USA

Tel (336) 664 1233  
Fax (336) 664 0454  
<http://www.rfmd.com>

# RF3300-3

## Absolute Maximum Ratings

Parameter	Rating	Unit
Supply Voltage (RF off)	+8.0	V <sub>DC</sub>
Supply Voltage (P <sub>OUT</sub> ≤28dBm)	+5.2	V <sub>DC</sub>
Control Voltage (PA_ON)	+3.6	V <sub>DC</sub>
Mode Voltage (V <sub>MODE</sub> )	+3.6	V <sub>DC</sub>
Input RF Power	+10	dBm
Operating Case Temperature	-30 to +100	°C
Storage Temperature	-30 to +150	°C



**Caution!** ESD sensitive device.

RF Micro Devices believes the furnished information is correct and accurate at the time of this printing. However, RF Micro Devices reserves the right to make changes to its products without notice. RF Micro Devices does not assume responsibility for the use of the described product(s).

Parameter	Specification			Unit	Condition
	Min.	Typ.	Max.		
<b>High Power State (V<sub>MODE</sub> Low)</b>					
Frequency Range	1850		1910	MHz	Typical Performance at V <sub>CC</sub> =3.2V, PA_ON=High, T <sub>AMB</sub> =25°C, Frequency=1850MHz to 1910MHz (unless otherwise specified)  P <sub>OUT</sub> =28dBm ACPR @ 1.25MHz, P <sub>OUT</sub> =28dBm ACPR @ 2.25MHz, P <sub>OUT</sub> =28dBm  No damage. No oscillations. > -70dBc At 80MHz offset.
Linear Gain	24	25		dB	
Second Harmonic		-45		dBc	
Third Harmonic		-45		dBc	
Maximum Linear Output Power (CDMA Modulation)	28			dBm	
Total Linear Efficiency		35		%	
Adjacent Channel Power Rejection		-47	-46	dBc	
Input VSWR		-61	-58	dBc	
Output VSWR		1.5:1	10:1		
Noise Power		-141	6:1	dBm/Hz	
<b>Low Power State (V<sub>MODE</sub> High)</b>					
Frequency Range	1850		1910	MHz	Typical Performance at V <sub>CC</sub> =3.2V, PA_ON=High, T <sub>AMB</sub> =25°C, Frequency=1850MHz to 1910MHz (unless otherwise specified)  ACPR @ 1.25MHz, P <sub>OUT</sub> =16dBm ACPR @ 2.25MHz, P <sub>OUT</sub> =16dBm  No damage. No oscillations. > -70dBc
Linear Gain	17	20		dB	
Second Harmonic		-45		dBc	
Third Harmonic		-45		dBc	
Maximum Linear Output Power (CDMA Modulation)	16			dBm	
Adjacent Channel Power Rejection		-49	-47	dBc	
Input VSWR		-64	-59	dBc	
Output VSWR		2:1	10:1		
			6:1		

Parameter	Specification			Unit	Condition
	Min.	Typ.	Max.		
<b>DC Supply</b>					$T_{AMB}=25^{\circ}C$
Supply Voltage	3.2	3.7	4.2	V	
Quiescent Current		150	180	mA	$V_{MODE}=Low$
		40	55	mA	$V_{MODE}=High$
PA_ON Current		0.1		$\mu A$	
$V_{MODE}$ Current		0.1		$\mu A$	
Turn On/Off Time			<40	$\mu s$	PA_ON switched from low to high, $I_{CC}$ to within 90% of the final value, $P_{OUT}$ within 1dB of the final value.
Total Current (Power Down)		5		$\mu A$	PA_ON=Low
PA_ON "Low" Voltage Range	0		0.5	V	
PA_ON "High" Voltage Range	1.7	2.7	3.6	V	Must not exceed $V_{CC}$ .
$V_{MODE}$ "Low" Voltage Range	0		0.5	V	
$V_{MODE}$ "High" Voltage Range	1.7	2.7	3.6	V	Must not exceed $V_{CC}$ .
Gain Settling Time			6	$\mu s$	PA_ON switched from low to high, $P_{OUT}$ within 1dB of the final value.
			6	$\mu s$	PA_ON switched from high to low, $P_{OUT}$ within 1dB of the final value.
<b>Internal Power Detector</b>					
PDET Output Voltage		1.35		V	$P_{OUT}=28dBm, V_{MODE}=Low$
		0.6		V	$P_{OUT}=16dBm, V_{MODE}=High$

**RF3300-3**

**2**

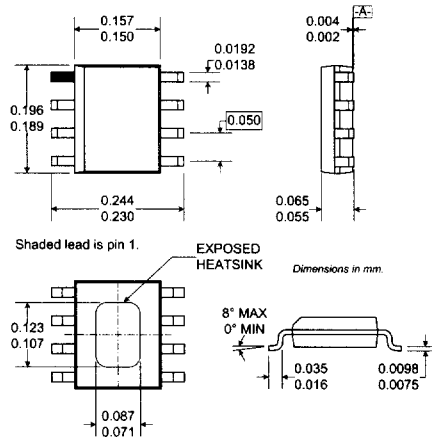
**POWER AMPLIFIERS**

**Typical Applications**

- 2.14GHz UMTS Systems
- Digital Communication Systems
- PCS Communication Systems
- Commercial and Consumer Systems

**Product Description**

The RF5187 is a highly-linear, low-power amplifier IC. It has been designed for use as the driver RF amplifier in applications such as W-CDMA basestations. The RF5187 requires an input and output matching network and power supply feed line. The device is manufactured on an advanced Gallium Arsenide HBT process, and is packaged in a 8-pin plastic package with a backside ground.



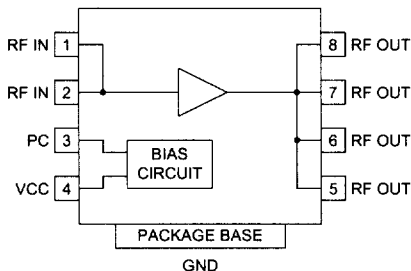
**Optimum Technology Matching® Applied**

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| <input type="checkbox"/> InGaP/HBT  | <input type="checkbox"/> GaN HEMT            | <input type="checkbox"/> SiGe Bi-CMOS |

**Package Style: SOIC-8 Slug**

**Features**

- Single 3V to 6V Supply
- 10dBm to 20dBm Ultra Linear Output Power
- 14dB Gain at 2.14GHz
- Power Down Mode
- 800MHz to 2500MHz Operation



**Functional Block Diagram**

**Ordering Information**

- |             |                                  |
|-------------|----------------------------------|
| RF5187      | Low Power Linear Amplifier       |
| RF5187 PCBA | Fully Assembled Evaluation Board |

RF Micro Devices, Inc.  
7628 Thorndike Road  
Greensboro, NC 27409, USA

Tel (336) 664 1233  
Fax (336) 664 0454  
<http://www.rfmd.com>

# RF5187

## Absolute Maximum Ratings

Parameter	Rating	Unit
Supply Voltage ( $V_{CC}$ )	-0.5 to +7.5	$V_{DC}$ V
Power Control Voltage ( $V_{PC}$ )	-0.5 to +5V	V
DC Supply Current	450	mA
Input RF Power	+20	dBm
Output Load VSWR	20:1	
Operating Ambient Temperature	-40 to +85	°C
Storage Temperature	-40 to +100	°C



**Caution!** ESD sensitive device.

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Parameter	Specification			Unit	Condition
	Min.	Typ.	Max.		
<b>Overall</b>					$T=25^{\circ}\text{C}$ , $V_{CC}=5.0\text{V}$ , $I_{CC}=240\text{mA}$ , $\text{Freq}=2140\text{MHz}$ , $P_{OUT}=13\text{dBm}$
Frequency Range	800		2500	MHz	With external matching network.
Output Power		13		dBm	
OP1dB		29		dBm	
Small Signal Gain	13		15	dB	
Input VSWR		1.5:1			
<b>Two-Tone Specification</b>					
Output IP3	41	43	45	dBm	13dBm per tone.
<b>Power Control</b>					
$V_{PC}$	2.7	3.1	3.7	V	To obtain 240mA idle current.
Power Control "OFF"	0.2	0.5		V	Threshold voltage at device input.
<b>Power Supply</b>					
Power Supply Voltage	5		6	V	$V_{PC}=0.2\text{V}$
Supply Current			240	mA	
Power Down Current		2	10	$\mu\text{A}$	